Crayola™

Animation Studio

BRING YOUR ART TO LIFE!

Activity Guide

Published By Core Learning

Create Animations for Your Emails, Projects, Web Pages, & More!

®

Contents

Introduction to Crayola Animation Studio 1

Introductory Activities

Activity 1: Take a Line for a Walk: Introducing Draw and Fill Tools 2
Activity 2: Exploring Color: Basic and Complementary Colors 4
Activity 3: Creating a Background Image 6
Activity 4: Saving an Image as a Background 8

Animation Activities

Activity 1: Moving Image 9
Activity 2: Moods, Emotions, and Feelings 10
Activity 3: Simple Animation 13
Activity 4: Email Signature 15
Activity 5: Web Banner 17

More Artwork Activities

Activity 1: Using and Transforming Stamps 19
Activity 2: Imaginary Animals: Using Stamps and Patterns 21
Activity 3: Human Figure: Advanced Drawing and Coloring Features 23
Activity 4: Light and Color: Using Tones and Blending 25
Activity 5: Landscape: Light and Color in Nature 27
Activity 6: Perspective: Vanishing Points and Horizon Lines 29

Table of Keyboard Shortcuts 33

Images needed for the activities in this Guide can be found by opening the My Paintings>Activities folder in Crayola® Animation Studio.

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Introduction to Crayola Animation Studio

The Crayola Animation Studio Program is an easy-to-use digital art program with tools for creating animations for emails, web pages, and projects. You can create original images, add text, or import images into the program.

The features of Crayola Animation Studio include:

- five realistic art tools for drawing and painting
- animation tools
- images in the Stamps browser to use for animations
- motifs and textures to add artistic effects to animations
- text functions

Learn About Crayola Animation Studio Features

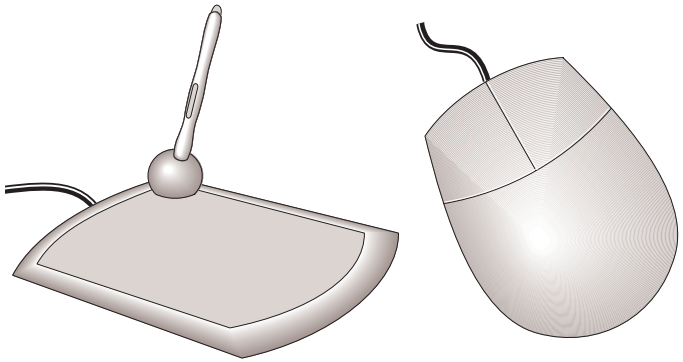
There are three documents found in the Resources Menu to help the you become acquainted with the program features and tools. They include are:

1. **Quick Start Tour** - is a self-running demo on how Crayola Animation Studio works.
2. **Activity Guide** is the document you are currently reading. It contains activities to help learn animation creation techniques.
3. **User Manual** contains a complete discussion of features of the program. Many opportunities for creative expression are explained. It will assist users, teachers, tutors, and parents in learning how to use the program tools and functions.

The activities use many images that have been included with the program. When the Activity Guide refers to the Activities folder, you can locate this by choosing File>Open>My Paintings>Activities. The program automatically opens in the My Paintings folder when you choose File>Open, so you should just have to locate the Activities folder in there. The Activity Guide also refers to images in the Stamps folder. You can access the images from the Stamp Browser located on the right side of the interface (if not displayed, click the on the toolbar to show the sub-folder names).

If you wish to add an image to the Stamp Browser, you have to save your images in the program Stamps Folder. You can do this by choosing Save As>C:>Program Files>Crayola Animation Studio>Stamps. You can choose a folder to add them to, create a "new" stamps folder category, or save in the "open" folder (unlabelled folder at the top of the drop down list in the Browser). Save to the Stamps folder and not a named sub-folder. Now when you open your Stamp Browser in the program, your stamp images will be accessible.

Take a Line for a Walk: Introducing Draw and Fill Tools

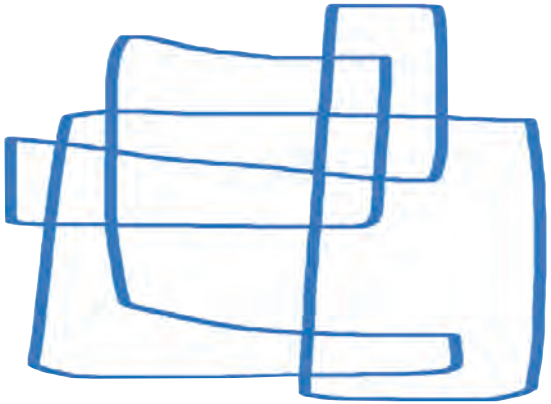


You may be able to draw well with a pencil or crayon but you may find it difficult using a mouse. Even if you have a graphics pad it is not easy to start with. Although the drawing tool is like holding a pencil, the picture appears on the screen, not on the surface on which you are pressing. The following exercise will help you to practice.

Crayola® Marker

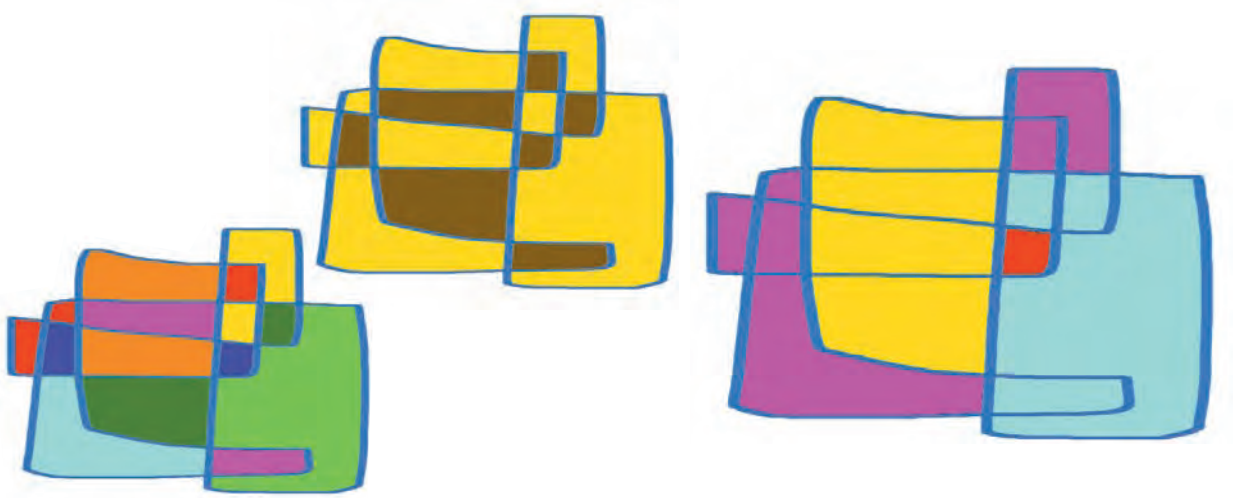
Continuous Curve

Choose the Crayola® Marker and a color and "take a line for a walk" as Paul Klee (a famous Swiss painter from a hundred years ago) used to say. Keep to straight lines, perhaps in line with the edges of the surface using the Continuous Curve tool.



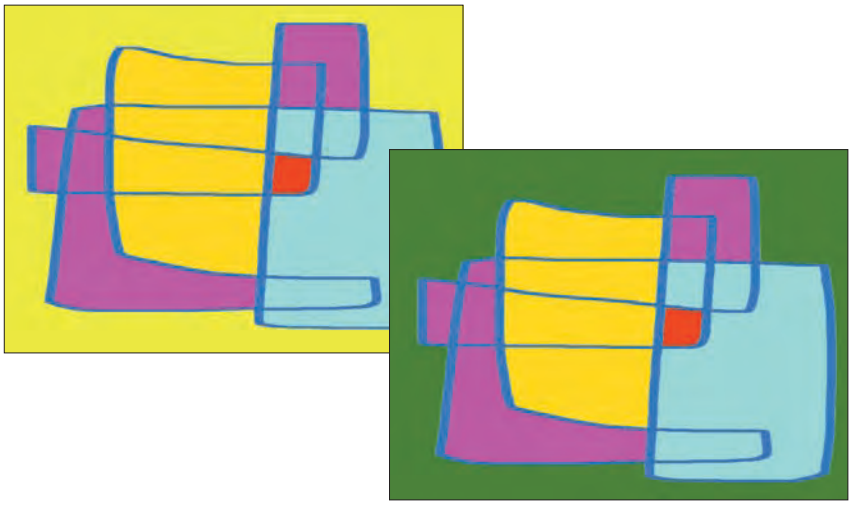
Fill

Fill in some of the shapes with colors. These could be one light color and one dark one; or perhaps they could be colors that are all light or all dark. You could put them in shapes that do not touch each other or shapes that only touch at the corners.



Fill

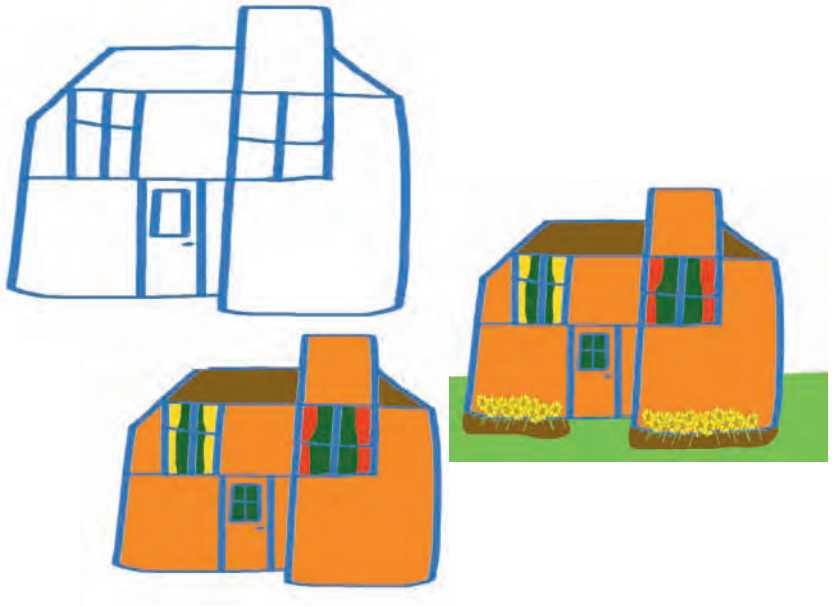
If you have left a background that surrounds these shapes, try filling that in with a light or dark color to see what effect it has on the main part of the picture.



When you are happy with the mouse or graphics pad drawing you have done, see if it suggests anything you can recognize. When you can see something in the picture, make this your new subject and complete the picture as you wish, using other colors and tools to draw in any other details you need. (You could find things in the Stamp browser to add to it too).

Stamps

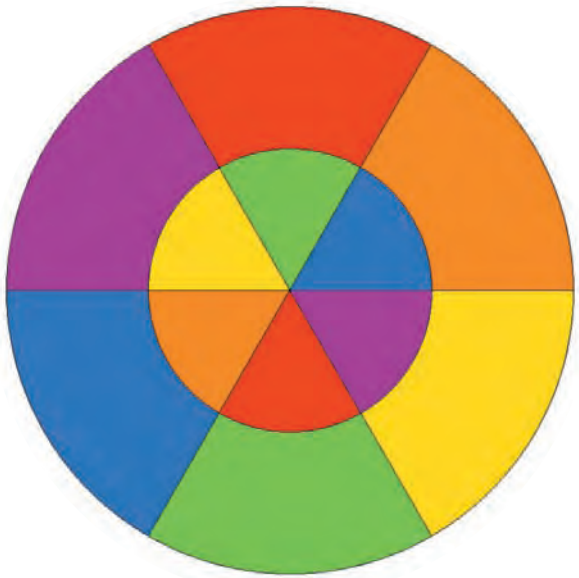
If you want to erase something, right-click the mouse.



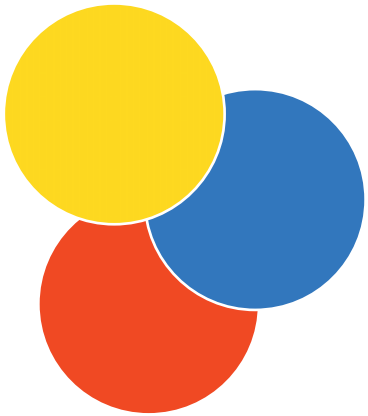
Continuous Curve

Perhaps you could draw a line for your friend to finish, or your friend could draw you a line to turn into a picture. Alternatively, load the Lines.rna files from the Activities folder.

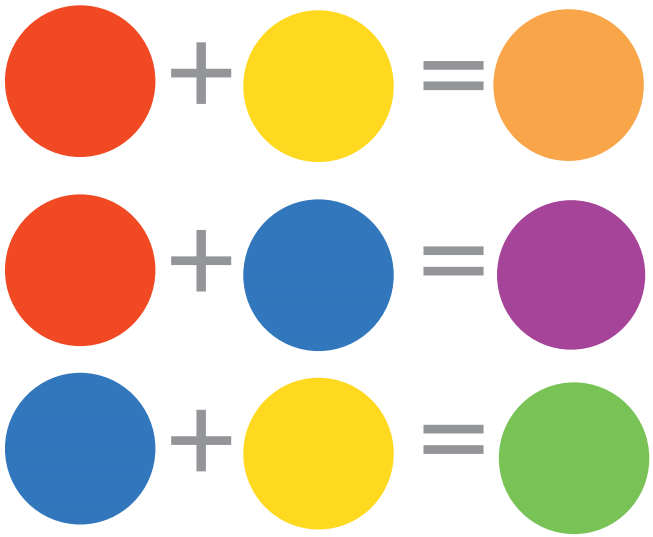
Exploring Color: Basic & Complementary Colors



Have you ever looked closely at the colors in a rainbow? Look at the rainbow and at the color wheel. Is your favorite color there?

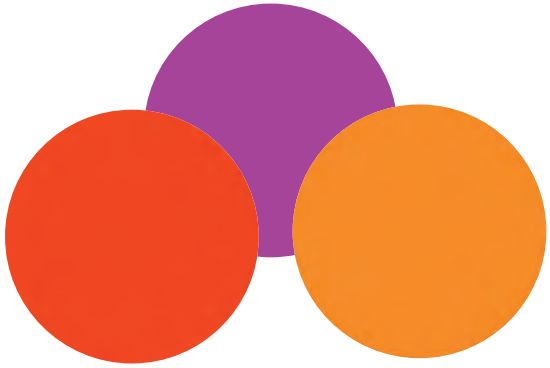


The basic colors in the circle are Red, Blue and Yellow.



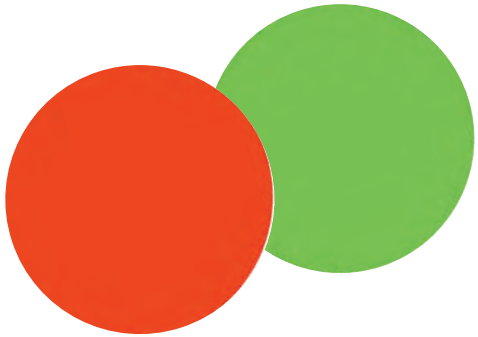
If you mix Red and Yellow together you will get Orange.
Red and Blue make Purple.
Blue and Yellow make Green.

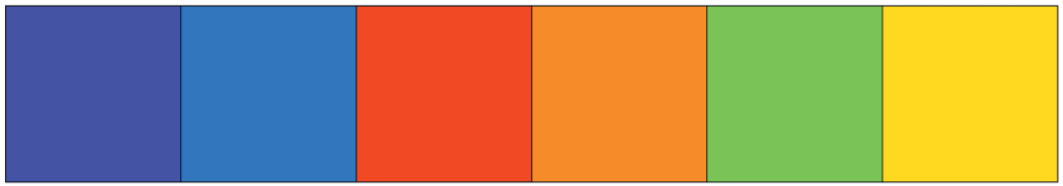
Look at the colors in the color wheel. The colors Orange, Purple and Green come between the colors that make them.



Some of these colors form families. Purple, Red and Orange, for instance, are related because they all contain Red.

On the other hand, some colors are opposites, such as Red and Green. Look straight across the color wheel and see if you can find other opposite colors. Opposite Colors are called Complementary Colors.





Some of the colors are light and some are dark.

Stamps

Fill

Think of a good subject containing bright colors. Here are a few suggestions: a bed of flowers; a bunch of balloons; kites flying against a colorful sky; a mixture of all of these. Use any drawing tool plus the Fill tool. See if you can find pictures in the Stamp browser to help you or load the Colors.rna file from the Activities folder.

In some of your pictures keep the related colors close to each other. In others try putting an opposite color in with the related ones. Try putting the dark ones together and adding a pale one to them.

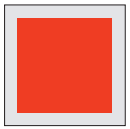
Creating a Background Image

A background is an image that creates a setting that appears behind your main images. It provides a scene for your images. There are many different types of background that can be used. They could be beaches, shopping centers, parking lots, classrooms, kitchens, deserts, rainforests, and much more.

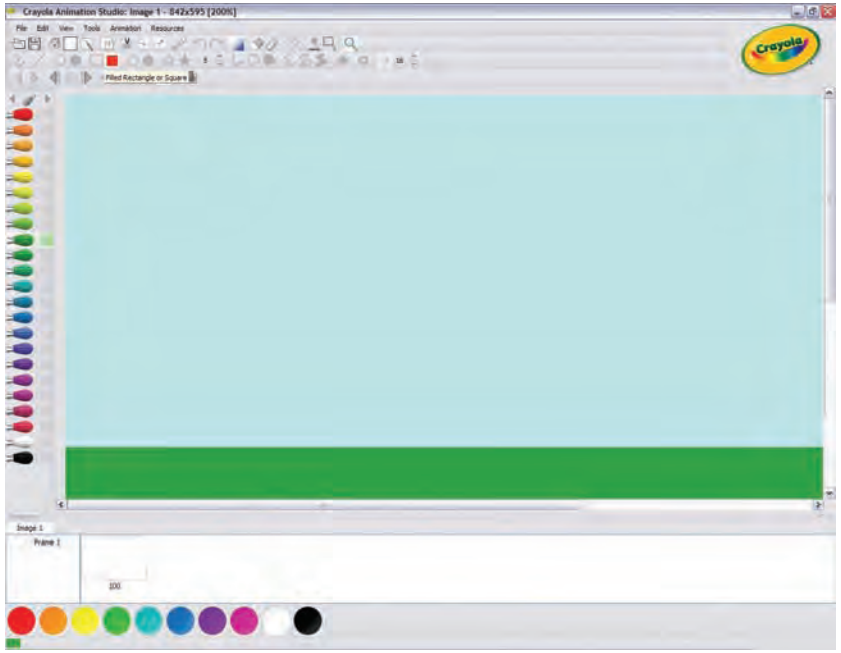
Think about different backgrounds you have seen in different pictures. What type of backgrounds could you use as a starting point for your picture? Think of the type of image you are trying to create. Is it indoors or outdoors? Day or night? Real or imaginary? A room, a place, or a location? Once you have chosen a theme for your image you can start to build a background.

Think of a background in layers. Decide what features will be needed on the entire drawing and then build on them.

Start by drawing the main elements of your background, such as the sky and grass. You can use the filled rectangle or square.

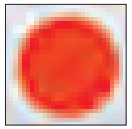


Filled Rectangle or Sqaure

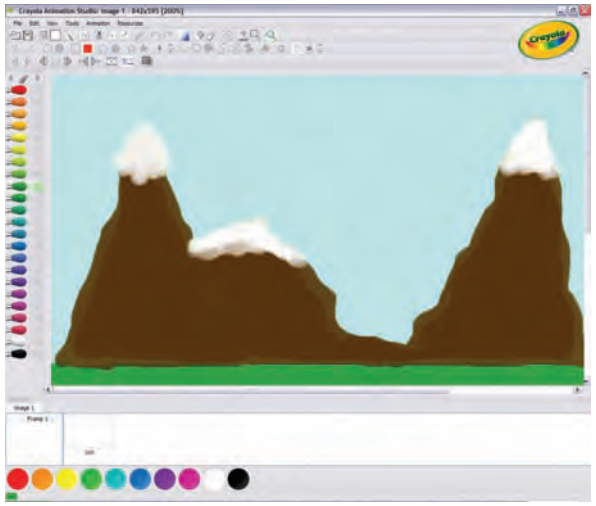


Once you have your basic background, you can start adding the other elements. Use a variety of shape tools and art tools to experiment. If you want something to appear in the distance, such as mountains, draw them next. Place them on the horizon (the line where the sky and grass meet). You can make them appear farther away by drawing them smaller or closer by drawing them the same size.

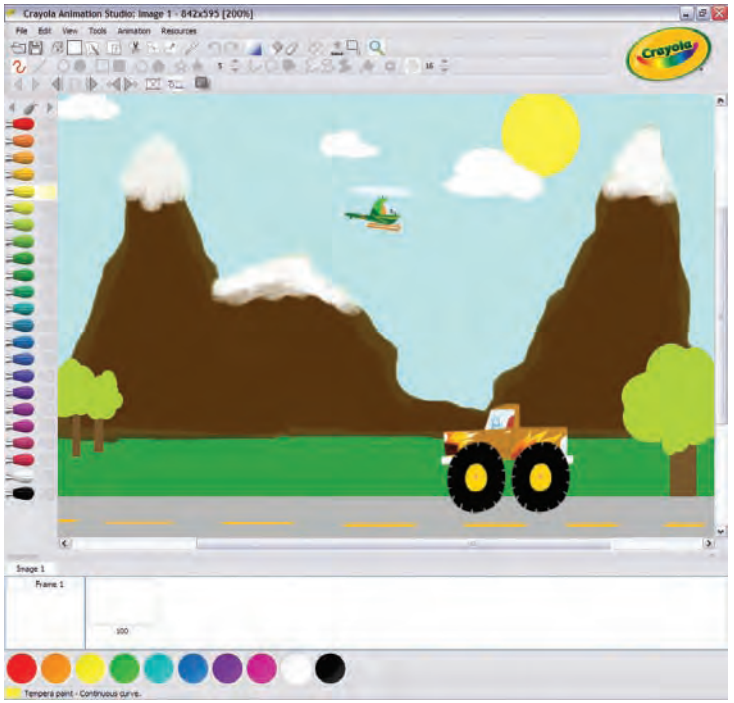
Continuous Curve



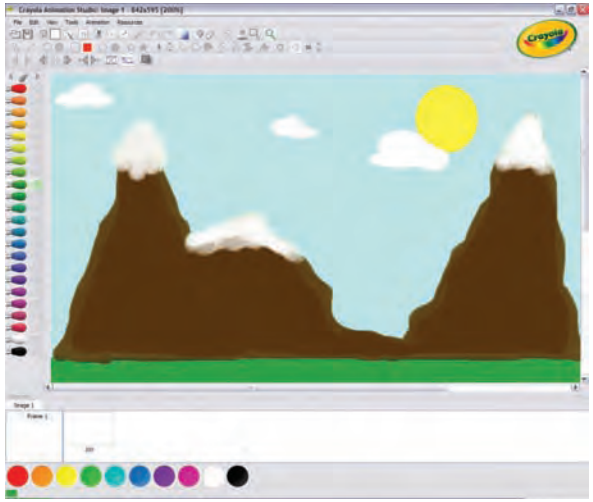
Filled Circle



Next add some trees, or a road. Complete your drawing however you wish, adding elements that you do not want to have changed, such as flowers, cars, birds, etc.



Now add features to your sky - perhaps some clouds (the filled circle or free-hand drawing tools are great for this), the sun, or some birds.

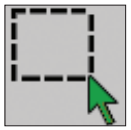


Stamps

Remember to look in your Stamp Browser for images you can easily add to your background.

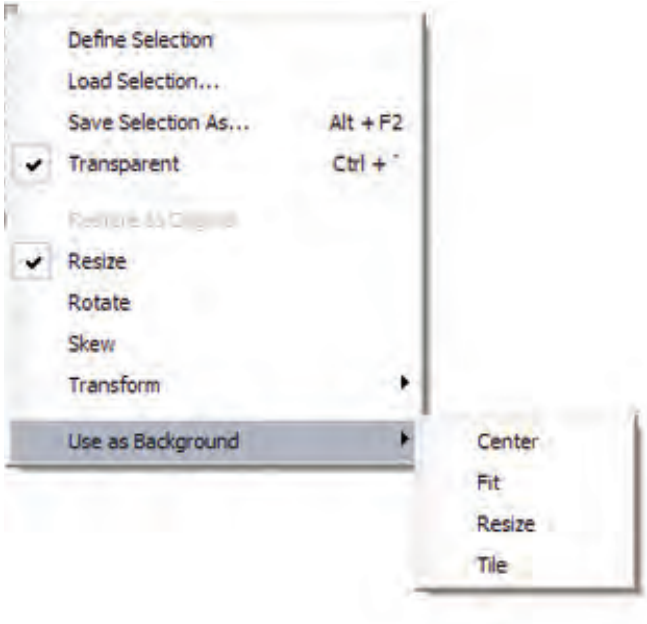
Saving an Image as a Background

You can use any of the pictures you draw, or pictures you have saved on your computer as a background (this means that art tools such as the Erasing tool will not work on your image).



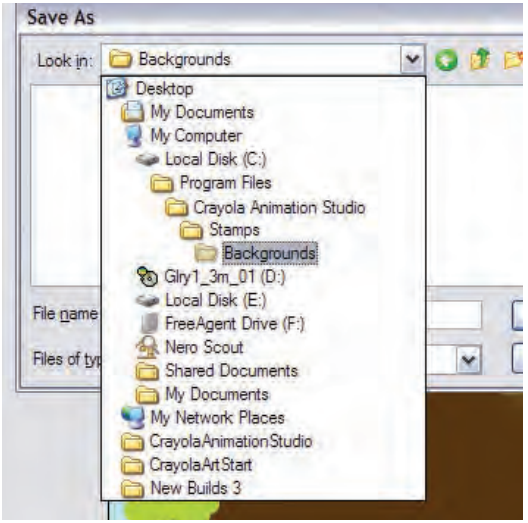
Selection

Select your picture using the selection tool and drawing a shape around the entire picture, or press the CTRL>A keys on your keyboard. With your picture selected, right click your mouse. A dropdown menu will appear. Go to Use as Background. A pop-out menu will appear with these options: Center, Fit, Resize, and Tile.



Choose Resize to have your background fill the page. Now your image is the background. Even if you clear the page using the Clear picture feature, your image will remain the background.

You can now complete your picture by adding other elements - drawing objects, adding stamp images, or adding text to it.



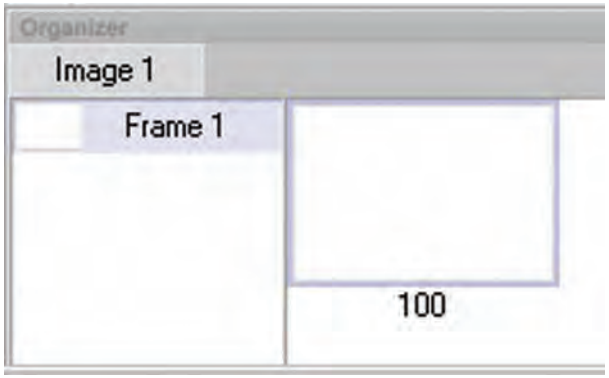
You can also save your image as a background by saving it as a Stamp (File >Save As>My Computer>Local Disk (C:)>Program Files>Crayola Animation Studio>Stamps> Backgrounds>your filename.rna). This will store your background for later use. When you use the stamp you will have to right click the mouse again to have the Use as Background options appear.

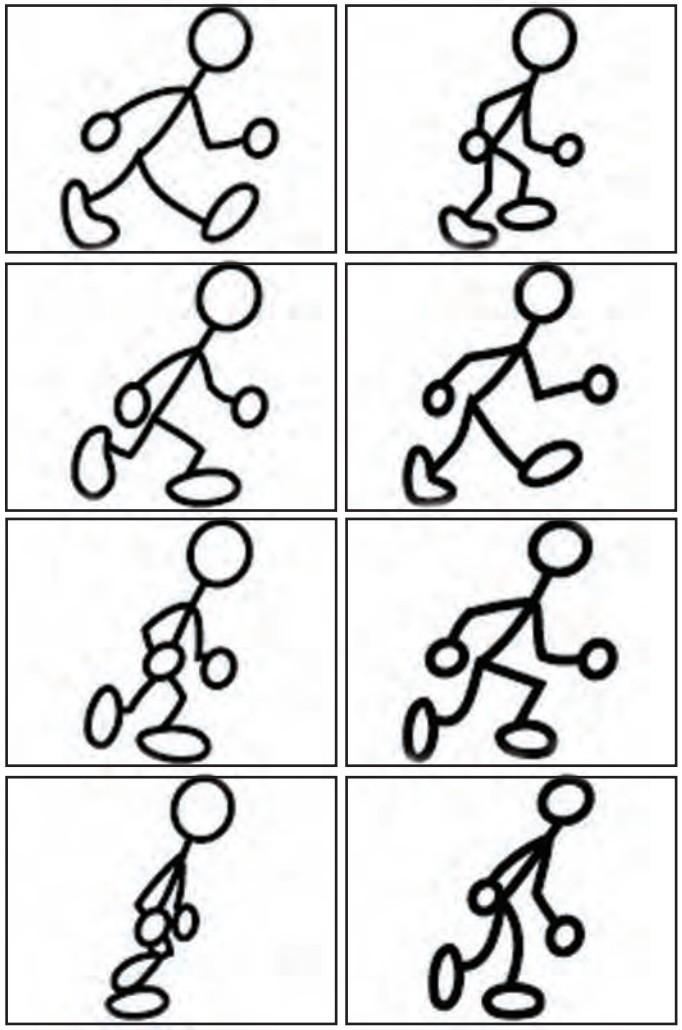
Moving Image

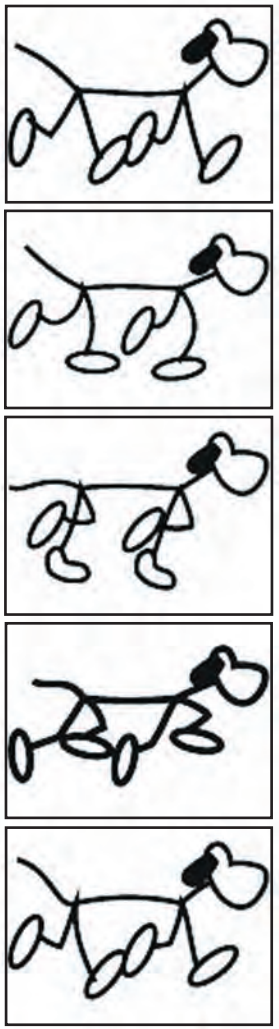
When you go to the movies, what appears to be a moving picture is a series of still pictures shown in quick succession. In order to make a cartoon, all you have to do is make a sequence of drawings, each with a little change from the previous one. Originally, all cartoons were made from thousands of drawings. These were then put together by filming them with a cine camera. Computers help us to do this much more quickly now, using software like **Crayola Animation Studio**.

Paper Properties

Start a new page and use Paper Properties to set the screen to 128 x 128 pixels. Choose the Organizer from the View Menu to open the Organizer Window at the bottom of the screen. Your first frame will be visible to the left.

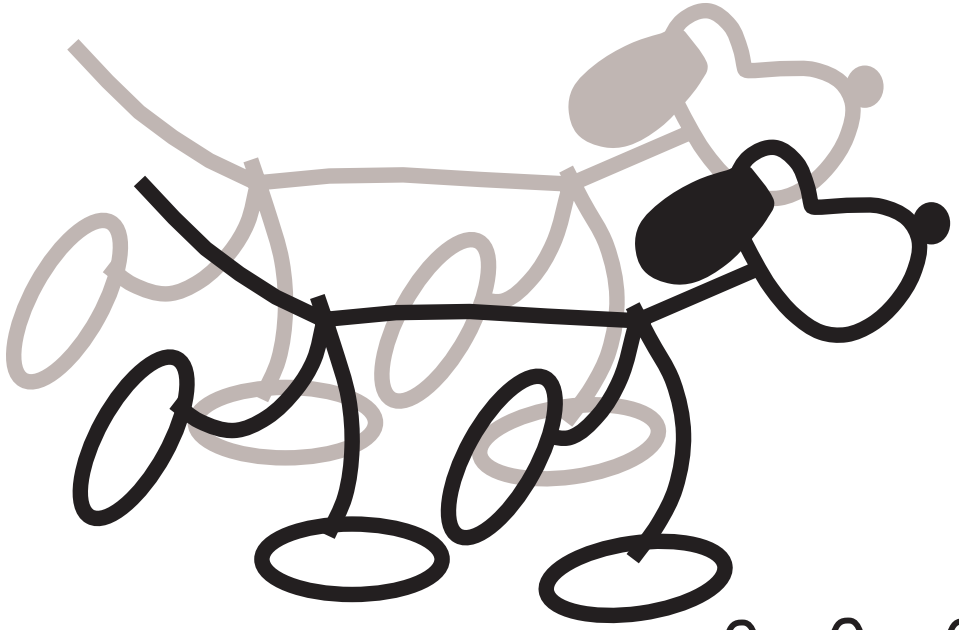


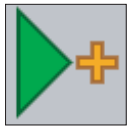




Stamps

Go to the Stamp Browser and choose ‘Animation’. The strip of pictures which appears contains eight drawings of a little man and five of a little dog. Drag the top one of the dog into your page. Position it in the middle and make sure that its nose and tail do not go outside the frame.





New Frame After

Now click on the ‘New Frame After’ button to get the next frame.

Onion Skin

Click on the ‘**Onion Skin**’ icon and the contents of the first frame will appear in pale gray in the new frame. Drag the next dog into the new frame and, using the Onion Skin, line up the backbones. Get another frame and repeat this pattern until all five drawings have been inserted.

Play Forward

Click on the ‘Play Forward’ button to see your dog running along.

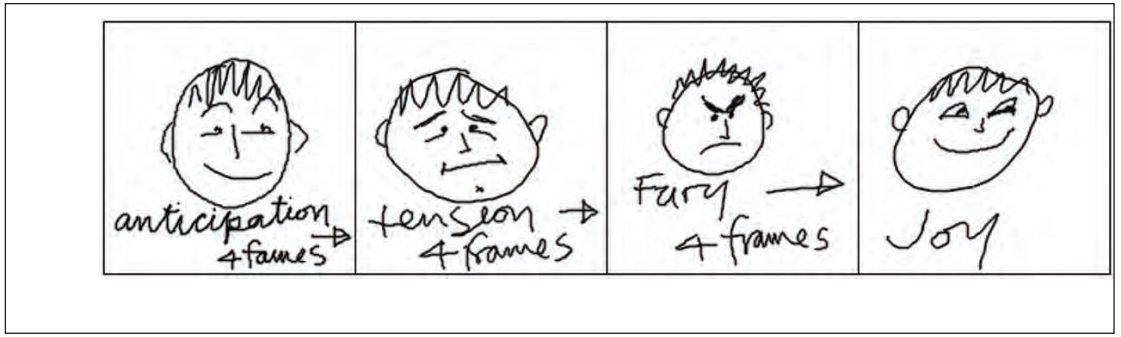
Start a new file (File>New or Ctrl+N), and repeat the exercise with the little man’s eight frames. Color in his head, hands and feet.

Eraser

Try doing your own drawings of a simple movement... If you want to erase something, use the Erasing tool. (The shortcut to this is to draw with the right hand mouse button instead of the left). Note that if you draw with white paint and use the left hand button you will not be able to see the Onion Skin drawing of the previous frame.

Moods, Emotions, and Feelings

You are going to show (in an animation) how emotion can change a face as circumstances change. Before you start, you need to get in your mind a little story which you are going to depict. It could be near the end of a race and your favorite athlete is half a pace behind the leader. Can they make up the distance before the finish line?



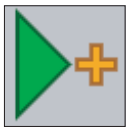
You can finish the story yourself but the tension and final outcome are only expressed by the agonies or joy on the face of the spectator.

The normal planning tool for animations and films is the storyboard. This is a grid into which a mixture of words and sketches go to give a rough idea of what the piece will contain and where the major changes in the story occur.

It would be a good idea to think about the faces you want to express and do sketches of what happens to the eyes, mouth, eye-brows and color.

In the Activity Folder there is a template called Storyboard.rna to help you plan your animation.

When you have decided what you are going to do, draw the main versions of the face as set out in your storyboard. Work out how many frames will be needed between each and add that number of frames.


New Frame After

For instance select the first frame and click on the New Frame After button as many times as you want new frames.

Onion Skin

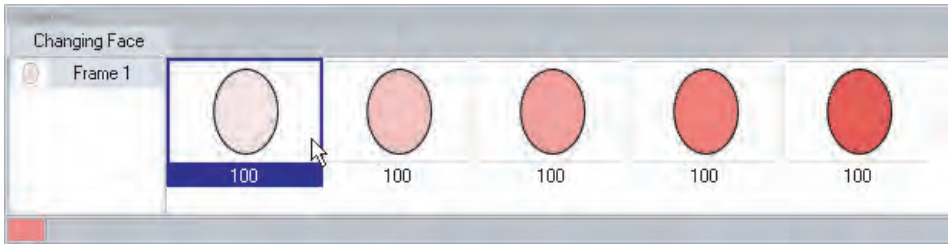
Turn on the Onion Skin so you can see the shadow of the previous frame to help you draw.

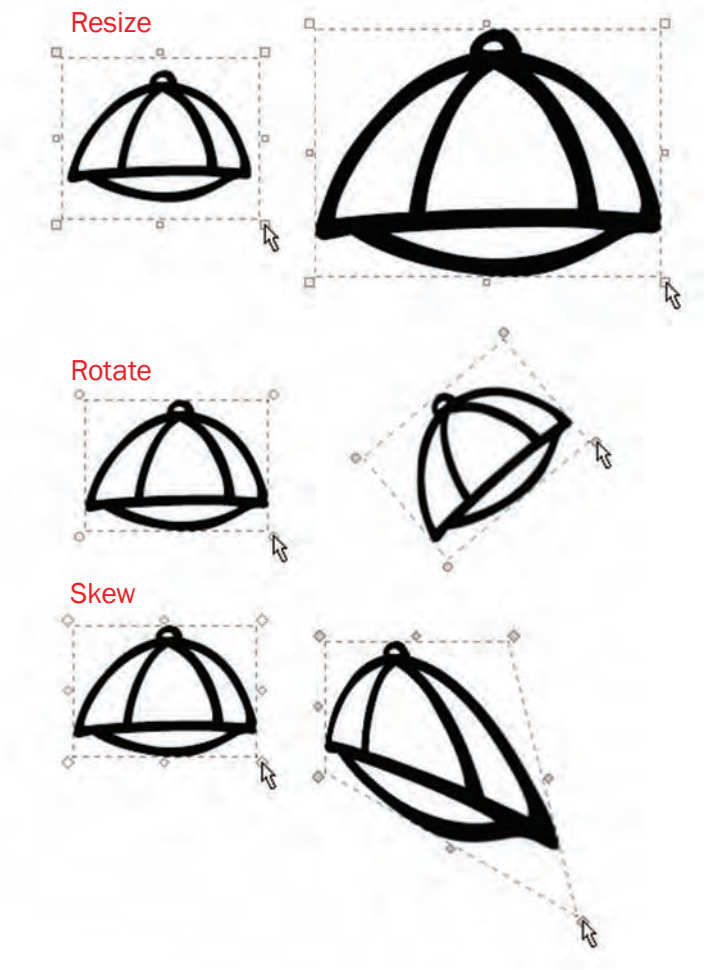
Stamps

Look in the Stamp browser and load the list called ‘Cartoon Elements’. In it you will find various facial features which you may be able to use. Drag one into your frame and resize it as necessary. You can also use the Rotate and Skew tools while it is in Selection mode. But the easiest way to see what facial expressions are like is to pull a face in a mirror.

Fill

You can color the face. For instance you could make it turn red as it comes to anger or fury. Choose a mid-red from the palette and move the transparency slider about two-thirds of the way to the right. Color in all the faces in this sequence with the Fill tool. Click once in the first face, twice in the second, three times in the third and so on till you have done all of them.



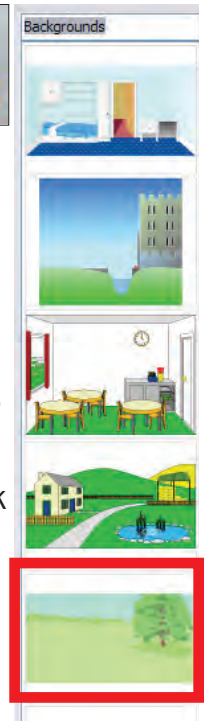


One of the earliest animated films or cartoon films was called Skeleton Jangle, in which some jolly skeletons dance round a graveyard. Use the Skeleton.rna file from the Activity folder to try and make your own skeleton dance.

Simple Animation

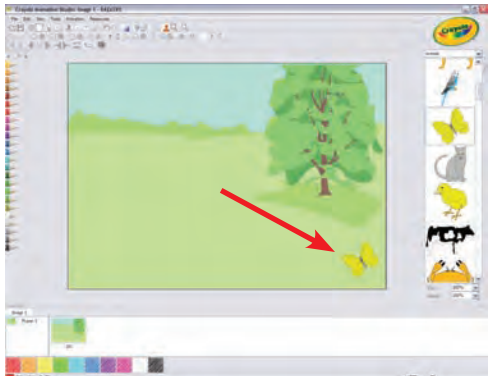
In this activity you will learn how to make an image move across the screen.

Stamps



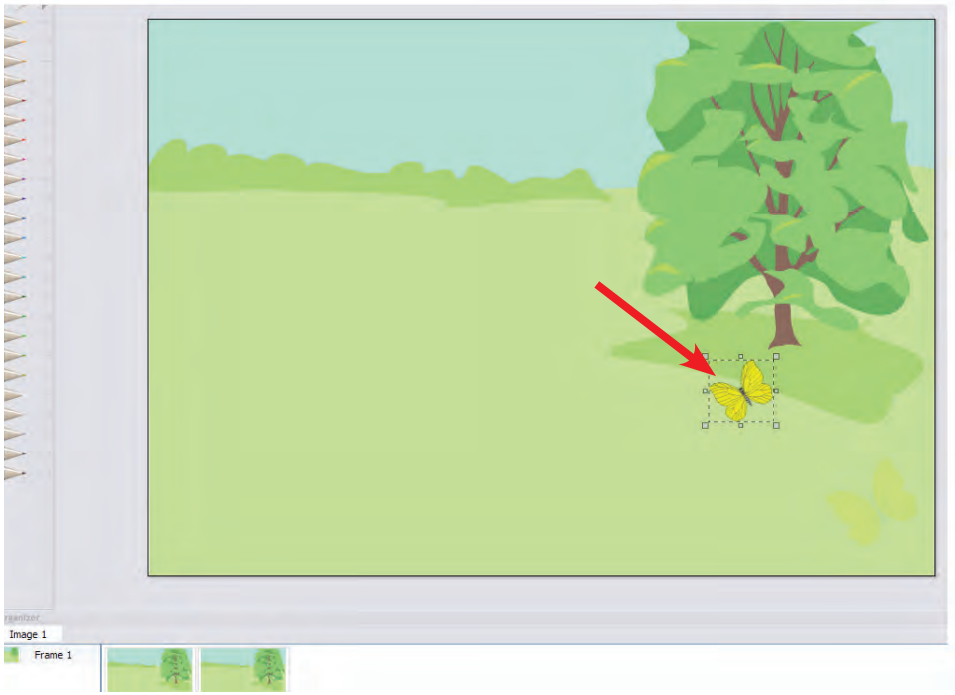
Open a new image. This will be the first Frame of your animation. Start by adding a background. Go to the Stamp Browser and choose the Backgrounds category. Choose the image of the sky, grass, and tree (the fifth image in the list). Click and drag it onto the screen. With the selection box active around it, right-click and choose Use as Background from the drop-down list. Choose the Resize option from the pop-out list. This will now be the background for each new Frame added.

Now let's start your animation by adding an image. For this example, use the butterfly image found in the Animals category of the Stamp Browser. Click and drag the stamp image onto the screen. Position it near the bottom right hand side of the screen.



Now add another Frame. Turn the Onion Skin feature on. This will allow you to see a shadow of the previous frame, allowing for easier placement of the next image. Place another instance of the butterfly stamp on the screen, more towards the center and to the left. Also, resize the stamp, making it a little smaller.

Onion Skin



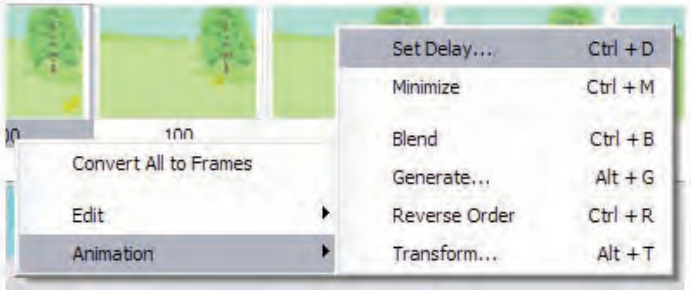
Play Forward

Continue to add the same butterfly image on multiple frames, reducing the size of the image and the distance from the starting point on each frame. Once you have 6 or 7 frames, and your butterfly is small and near the top left side of the page, press the Play Forward button to see your butterfly "fly" across the screen.

The default delay (speed of movement) is 100 which means a tenth of a second per frame. This makes the butterfly move rather quickly. Note: Setting the delay to 1000 will give a speed of one second per frame.

You can change the speed of the whole animation by using the Set Delay feature on the Animation menu. You can also manually change the speed of each frame. Click on the number below the frame and type in the new number. The larger the number, the slower the speed.

To change multiple frames at once to the same speed, select all the frames and then right-click. Select Animation>Set Delay and then type in a new number. Click OK. Try setting your delay to 200 for all frame items and then Play Forward again. This will provide a more realistic movement of the butterfly.

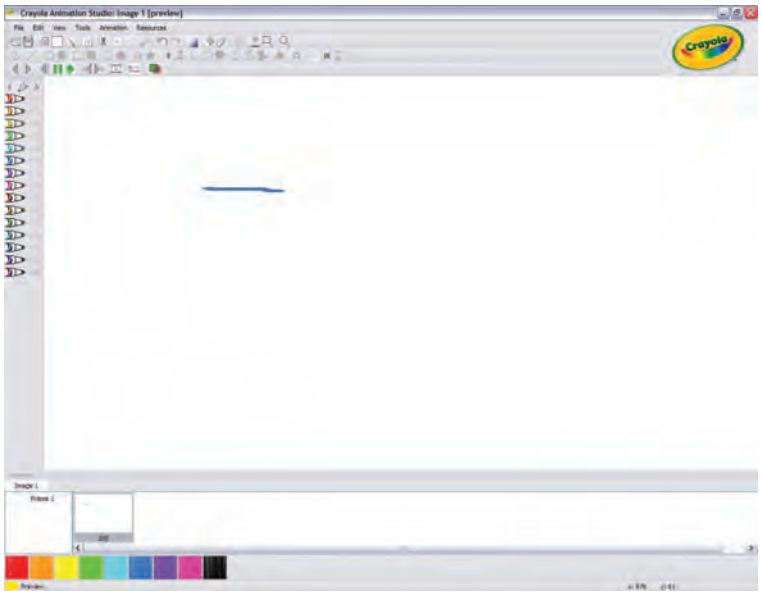


To save your image as animation, choose the *gif file format under the Save As drop down menu.

Email Signature

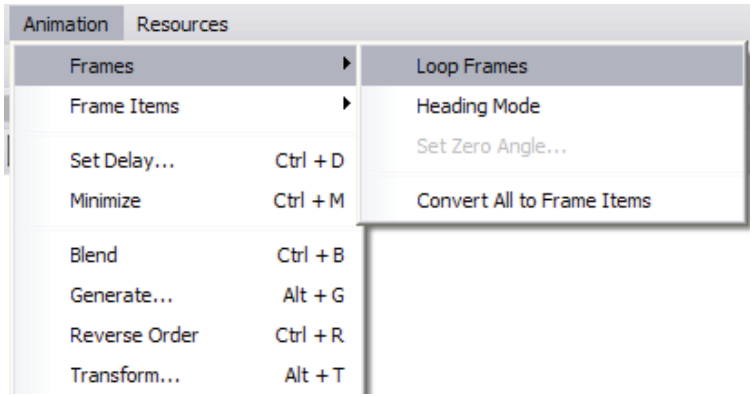
Emails are a popular way of communicating. Like handwritten letters and notes, emails close with a signature. You can use **Crayola Animation Studio** to create a moving signature or to add a moving graphic to enhance a typed signature.

To create a signature that appears like you are writing it, chose an art tool and a color. On the first frame item, "write" part of the first letter of your name.
Select the drawing using the selection tool and copy it. Now, insert a new Frame item and paste the drawing. The pasted drawing will appear in the exact same position as it was copied from.

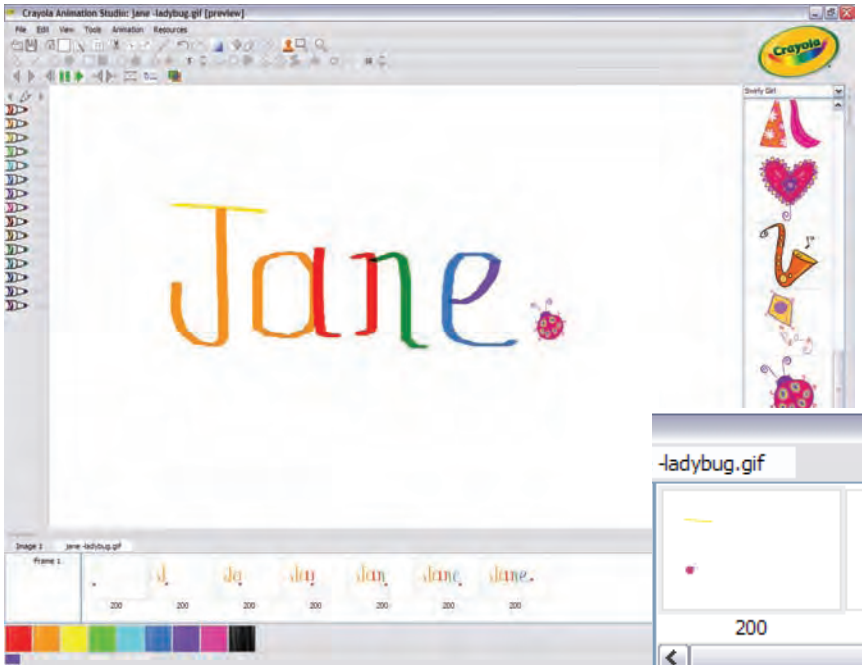


Add the rest of the letter and repeat the steps: select, copy, add new frame item, paste, and draw. Repeat the steps as many times as you need to finish spelling you name. When completed, click on the play forward button and watch as your name "writes" itself on the screen.

The animation will automatically loop (start over at the beginning and repeat all movements continuously). To stop it from looping, Choose the Animation>Frame option on the Animation menu click on Loop Frames. This will deselect the looping feature. Remember to save your animation as a *.gif.



Experiment with different colors (try making a rainbow colored name), different speeds using set delay, or with adding images.



To make an image appear to move across the screen, change the position or direction of it in each frame. The series of frames below show re-positioning of the ladybug in each frame. When this animation is played, you will see the ladybug move as the signature is done.

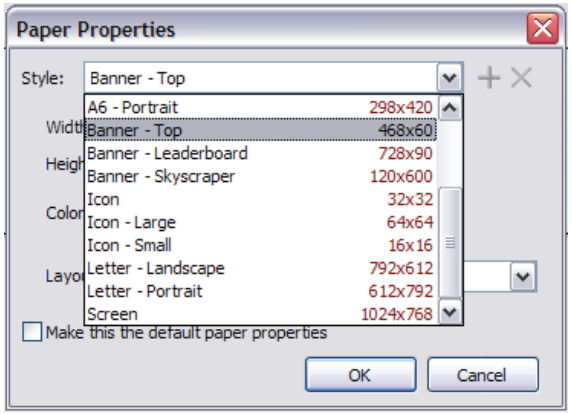
Web Banner

Web banners are used on web sites to advertise or highlight items of interest. This activity will teach you how to create a web banner.

The following is a list of standard web banner sizes measured in pixels available in **Crayola Animation Studio**.

Full Banner	468 x 60
Leaderboard	728 x 90
Skyscraper	160 x 600

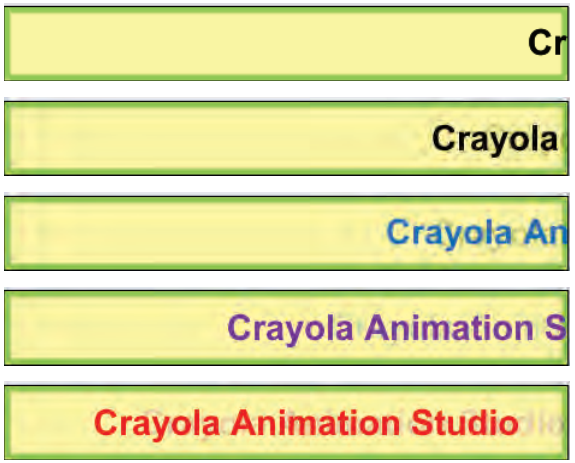
Choose View>Paper Properties to select a banner size from the drop down menu.



Before you start, plan out what the banner will look like (images and messaging) and what it will do (have text move across screen, have text or images "flash", have multiple messages rotate through, etc.). Always start by filling the background with a color or choosing a Stamp image to use as a background. Then "layer" your text and images on top. Add text and images. Insert a new Frame item and continue adding elements until completed. Adjust the time delays to the appropriate speed for each frame item to appear. Save as a *.gif.

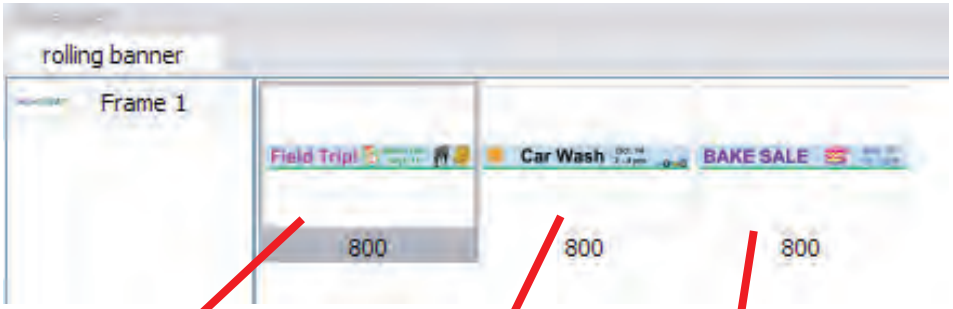
Here are a few techniques that you could use:

1. **Scrolling text** - Choose the text tool. Type your full message and position it off the paper to the left, right, top, or bottom. Add a new frame, click the text tool again (it will remember what was last typed) and position the text showing slightly more of the message. Continue adding frames and the same text until the whole thing is showing, or until it has "left" the image area.



2. **Flashing text/images** - copy and paste the text/images that you want to flash onto every other frame (if you are doing a simple flashing image, such as a New button, you only need to have 2 frames - one with the text/image, and one with just your background image). When you hit play forward, they will appear to flash on and off the screen.

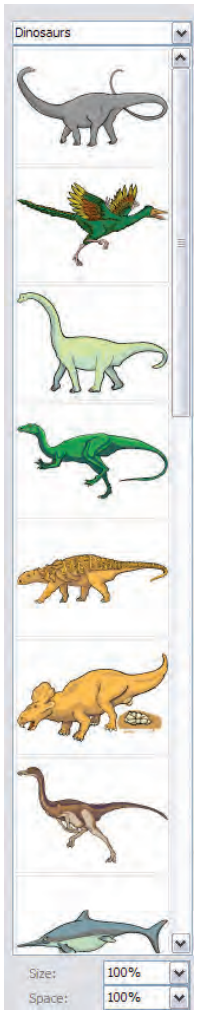
3. **Rolling banners** - create frame items with the same background, but change all the images and text on each frame. Adjust the time delay to ensure that each message is visible long enough to read (short messages should have a delay between 800 and 1000, longer ones, over 1000).



Using and Transforming Stamps

Stamps are a collection of images found in the **Crayola Animation Studio** Stamp Browser for use in your drawings. New images can be drawn and saved in the Stamp folder for easy access.

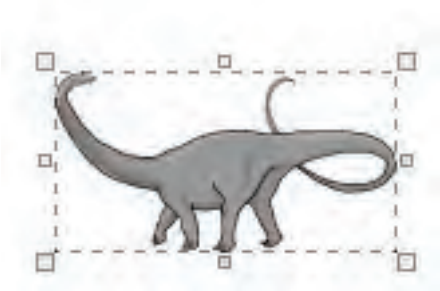
Stamps



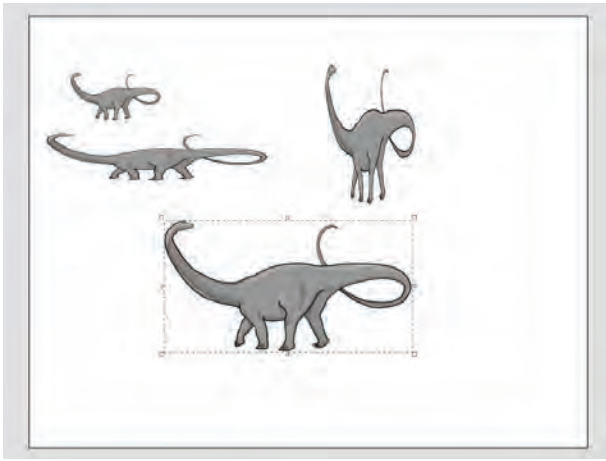
Open the Stamp Browser. Choose the Dinosaurs category. Select a dinosaur stamp.

You can apply stamps to your picture in two ways. First, you can select the stamp then click on the page to "stamp" it on your picture. This is the quickest way to add stamps.

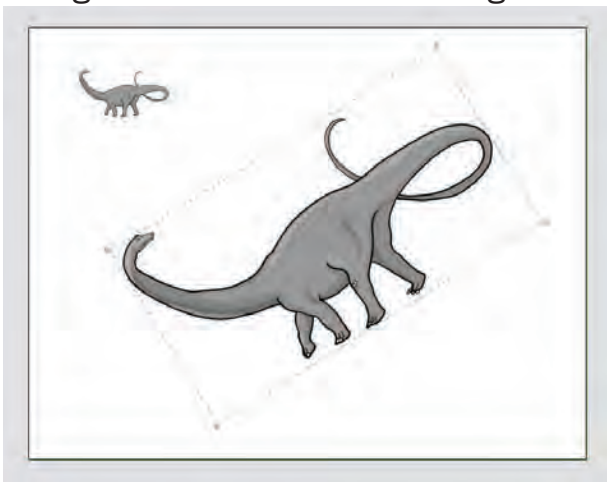
However, you can also click and drag a stamp onto the screen. This will create a selected stamp which will allow your to resize, rotate, and skew it.



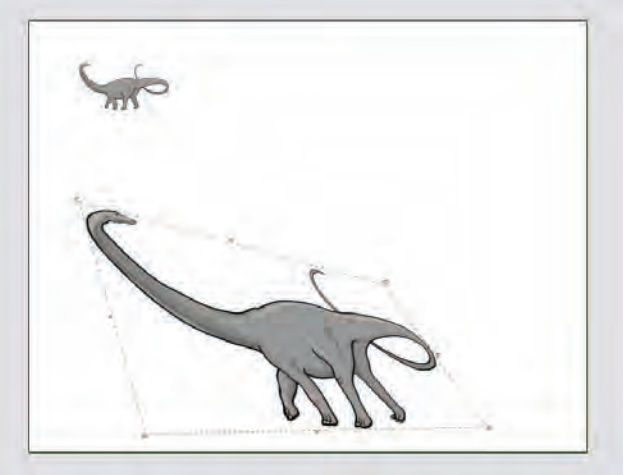
To resize, click and drag any of the corners or sides. Dragging on the corners will scale your image proportionately (evenly in all directions). Dragging the sides will distort your stamp (stretch or shrink it in the direction you are dragging).



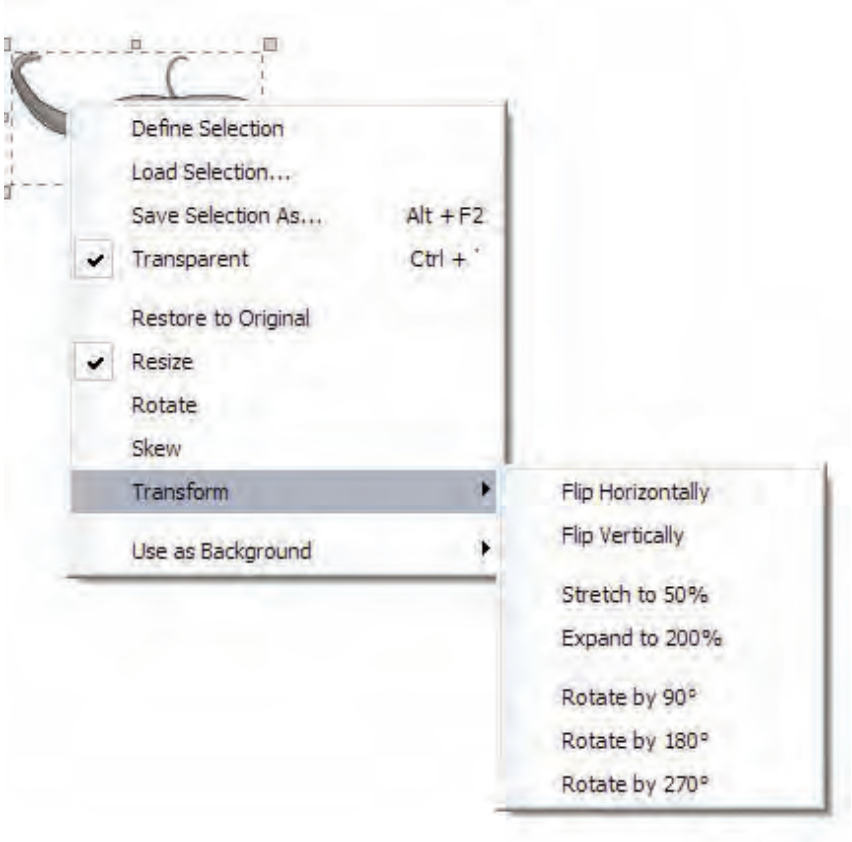
Next, we will rotate the image. Double click on the image to have the selection handles turn into circles (or right click and choose rotate). Drag one of the corners in the direction you want to turn your image.



To skew your image, double click the image again to have the corners turn into triangles (or right click and choose skew). Drag one of the handles to skew your image. Skewing an image turns it in a way that can show the appearance of movement.



You can further adjust the stamp by right clicking on the it. You can choose to transform your image by preset values - expand, shrink, flip horizontal, flip vertical, or rotate 90º, 180º, or 270º. Right clicking also let's you restore your image to the original settings if you don't like the way it appears.



Imaginary Animals: Using Stamps and Patterns

If you look at pictures of dinosaurs in a book you are seeing them as someone else has imagined them. You can work out the size and shape of the animals by studying the bones, but you have to imagine the other details. For instance, ears do not have many bones in them so their shapes have to be imagined or left out. Of course, you do not know what color the ears were.

Most animals today share many features with each other and the dinosaurs. They have eyes, a mouth, a nose, legs and a head, but not tails or crests on the tops of their heads.

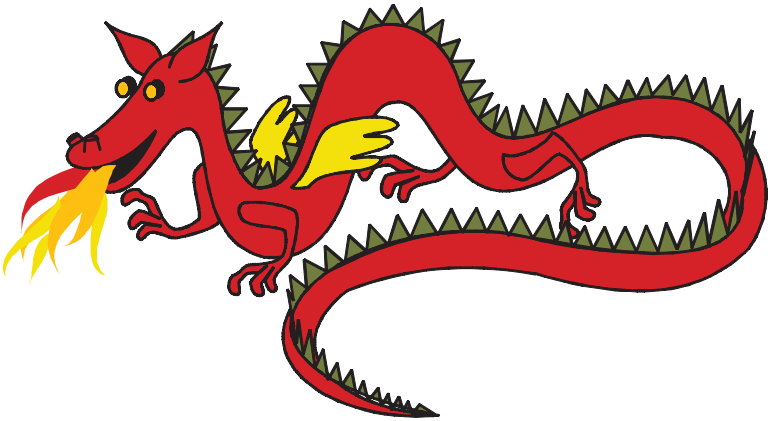
Look at someone's eye or your own in a mirror. It has a white part, a colored part (called the iris) and a small black circle (called the pupil) in the middle. The surface of the eye is always moist so there is nearly always a little light reflection in it which is called a highlight. Different animals have different shaped eyes and the shapes inside them can be quite different too.

In the same way you could look at the feet on your cat or dog. They have the same number of toes that people do, but their feet are a very different shape. Animals such as sheep, cattle and horses have hooves. Large animals such as elephants and rhinos seem to have toenails but no toes. Birds, too, have several different sorts of feet.

Which animals have these patterns?

Heads, tails, hair, feathers, noses and teeth come in a great number of varieties. The colors and patterns on fur and hide can be even more varied: some are brightly colored, some dull, some have patterns, some have stripes, some have long hair, some have short, and some have scales.

Long ago imaginary animals appeared quite often in fairy tales. Have you ever heard of a dragon or a unicorn? They weren't real animals, nor were the sphinx or the griffin. The sphinx was a mixture of a woman's head and a lion's body with wings added. A griffin also had the body of a lion but the head of an eagle! These mythical creatures were mixtures of two or more different animals or humans and animals.



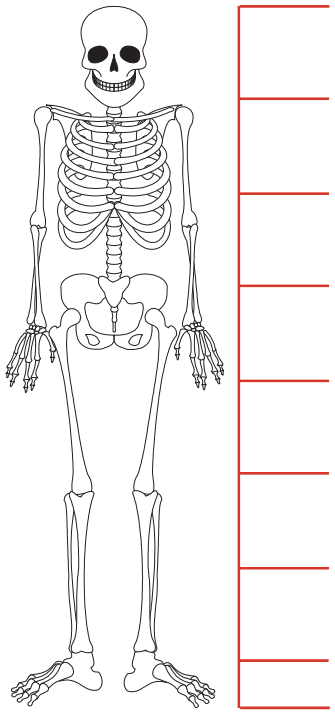
Stamps

Paint your own animal invention. Look at different animal and human features in pictures or in real life. Put some of them together to make your new creature. Perhaps you can find things to use in the Stamp browser. See the Dinosaurs and Line Art Animals stamps or load the Mythical.rna files from the Activities folder.

Human Figure: Advanced Drawing and Coloring Features

When people think of skeletons they nearly always think of dead ones, but most of the skeletons we know are alive–inside us! They give us our bodies their basic shape.

The proportions of the human body are usually worked out in terms of the height of the head (actually the face from the chin to the hairline).

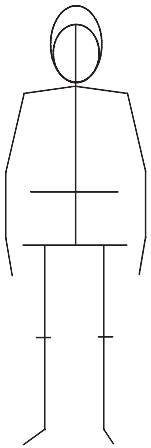


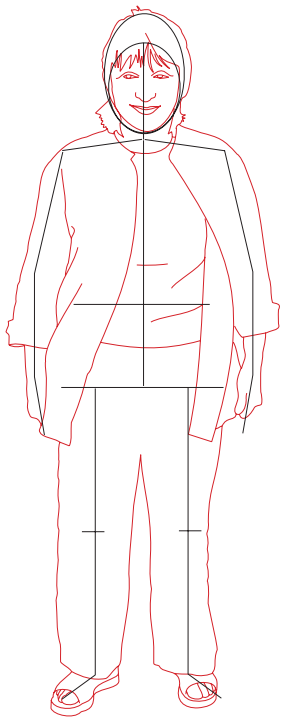
Roughly, an adult male will be 7.5 heads high

An adult woman will be 7 heads high

A young child–about 6 years of age, will be about 5 heads high

Is this skeleton male or female? An adult or child?





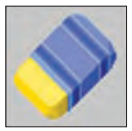
Start by trying to draw a standing figure that you are looking at from the front. Estimate or measure how many heads tall your subject is. Measure on your model where body parts such as the waist, hips, knees, elbows and ankles come in terms of head measurements from the top of the head down. See if you can find out how wide the shoulders, waist and hips appear to be in head measurements. Here is a tip, if you stand upright and press your wrists to the sides of your legs you will find they coincide with the joint at the top of your leg. A viewfinder grid might be a useful tool for helping to see the proportions.

Anti-aliasing

When you have decided what the measurements are, turn off the Anti-aliasing and sketch in the limbs like a stick person using the Continuous Curve tool. Draw the general shape of the person.

Continuous Curve

Choose a different color to fill out the body on top of the stick person. Red is shown here.



Erasing

To erase the stick person choose the Erasing tool. You may need to Zoom in to do this.

To color your figure choose a mid-tone for each color. The easiest way to do this is to use the Fill tool. Make sure each shape is a closed polygon or the color will leak into the surrounding areas.

Fill

Zoom

Use the Zoom tool to find where the holes are.

At this stage things often look quite good and you can stop there if you wish.

If you want to add tones to the drawing you can use transparent white to lighten the basic color.

Make sure that Anti-aliasing is on.

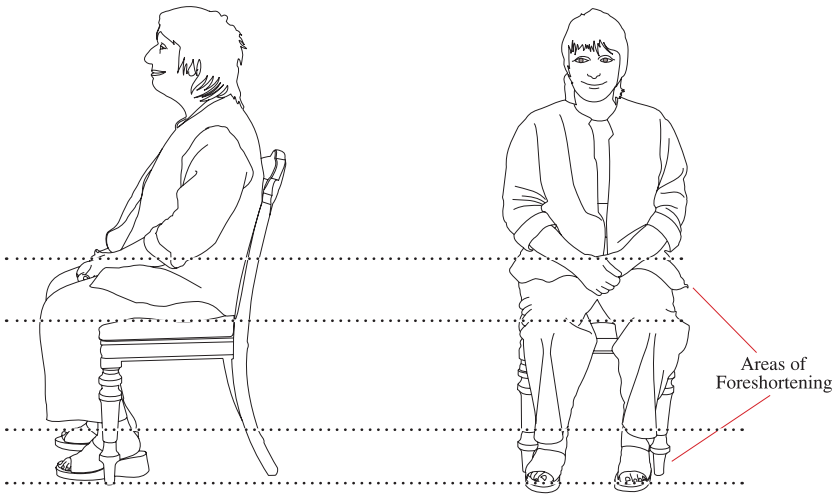
Anti-aliasing

Put the Transparency slider near the right end of the palette and do several strokes on top of each other until the right tone is obtained. To make the dark tone choose the opposite (complementary) color, very transparent, and go over the base color.

Transparency Slider

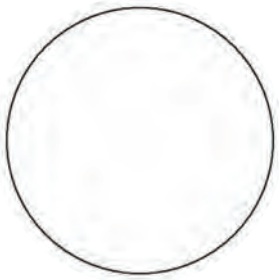
Draw a seated figure from the side so that you can see how the legs and arms are arranged.

Then try a seated figure from the front. All the measurements will the same as the standing one except for the thighs. Because these now make a horizontal shape they will appear much shorter than in the standing model. This effect is called foreshortening and happens wherever you are looking across a horizontal form.



Light and Color: Using Tones and Blending

Reflected light defines the form of three-dimensional objects. A circle, by itself, could be a hole you can look through, a flat disc, or a solid sphere. After shading is added, the type of object immediately becomes obvious.



This sphere is standing on a flat surface. It casts a shadow where light does not fall. The object is reflecting light, creating tones or shading.

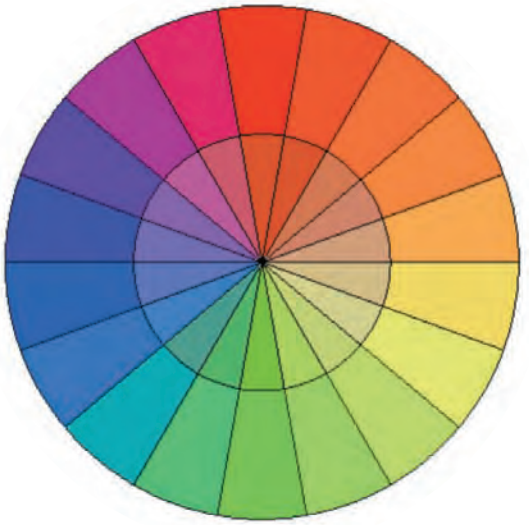
Look at this hollow cylinder which is lit from one side to see how reflected light affects the inside and outside surfaces and how the shadow is cast. To see the shades more easily, use white objects and only one light source. The brighter the light, the higher the contrast will be between dark and light tones (shading).

Look at the color wheel on the next page. There are more variations of each color. Red, yellow and blue are the Primary colors. When mixed together in pairs they make orange, green and purple, which are the Secondary colors. The colors between these are what you get from mixing a Primary and its opposite (Secondary) color. These are called Tertiary colors.

Now use a sphere that is the same color all over, such as an orange. This time the different tones apply to a color. If you have a white light source, getting a lighter version of your color is easy–just add a little white. If you use black, your color will soon be overwhelmed by it and the picture will look muddy.

To add tones to any colored object, try mixing in some of the opposite color, a little at a time. It will darken the object color so it will appear less vibrant where the light does not reach.

Experiment with this technique. Choose a kind of paint and select the base color of your object. Dab it into the opposite complementary color on the mixing palette and choose the intensity you want. When you paint with it, it will be transparent. Go over an area several times to get a darker color.



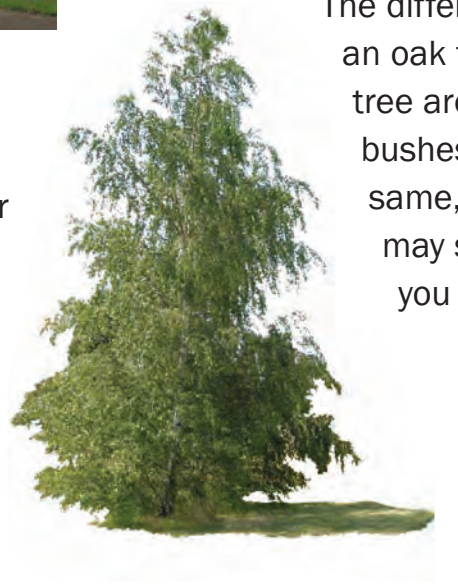
You can also select your color from the Color Chooser at the top of the screen and use the slider below it to make colors transparent. Moving to the right makes them paler. Moving to the left makes them darker. This gives more control over the color's tone.

Load the file Mixer.rna from the Activities Folder. We started with red and darkened it bit by bit with green until we got brown. Pick a color yourself and use the clear blocks to experiment with creating your own blends.

Landscape: Light and Color in Nature

Landscape in Art is how we show outdoor scenery. The art may include natural objects such as plants, trees and water; human-made elements such as buildings, fields and roads; or the space around them.

Each species of plant has its own shape, color and texture. The differences between an oak tree and a birch tree are obvious. Even bushes are not all the same, although they may seem to be until you look closely.



Buildings are nearly always made with simple geometric forms. Most are box shapes and prisms. Linear perspective influences how they are depicted. Things seem to get smaller as they get further away from you.

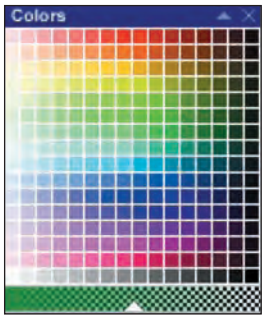
Water nearly always appears as a reflection, like a mirror if it is still, but broken up if it is moving. In the photograph, the water surface is moving just enough to blur the reflection of the trees and bridge.

The most important aspect of depicting landscapes is how to show the three-dimensional space. The combination of distance and light affects the appearance of the tones and colors as they get farther away from the viewer. Objects in the distance look paler and slightly bluer. The contrast between the lightest and darkest tones also is less. One way to achieve this effect in art is to make the colors rather more vivid than they appear and then to stroke over them with very transparent white or blue.

Tempera Paint

Use the Tempera Paint Brush for this exercise. At the bottom of the Color Chooser is a transparency slider. Move the arrow on it to the right end with your cursor. Any color you paint with will now be transparent.

Look up into a clear blue sky. Can you see the difference between the color overhead and that at the horizon?



Load the Landscape.rna file from the Activities folder. Use the transparency slider to modify the green and blue. Draw in your own landscape.

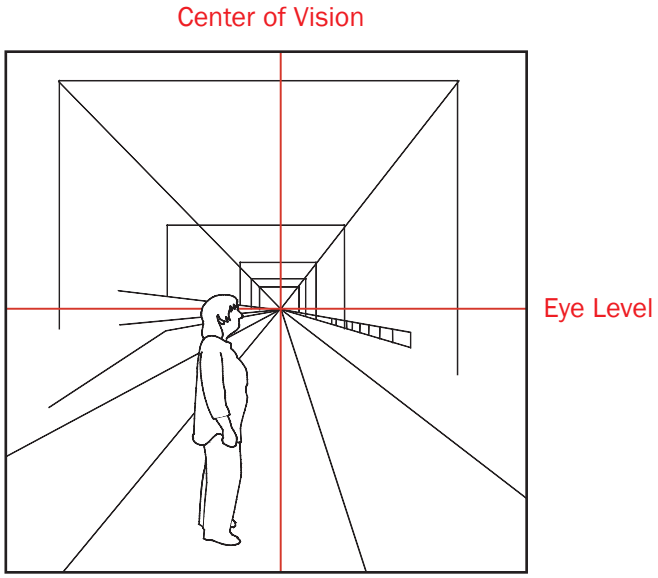
Perspective: Vanishing Points and Horizon Lines

As things get further away from you they appear to become smaller and less clear.

The system which artists use to help them understand and control this in their pictures is called Perspective. Linear Perspective, developed during the Renaissance, deals with lines. Aerial Perspective deals with tones and colors.

Look at this picture of a railway station. You are looking straight down the tracks. The width between the rails seems to get smaller as they go into the distance. The lines of the rails and the platform seem to converge (go toward each other) as they recede. Some of the lines seem to go to a point in the distance. These lines are actually parallel to each other (the railway lines, cable gantries, edges of the platforms and top and bottom of the fences).

The point where the lines appear to meet is called the Vanishing Point. The direction in which you are looking is the Center of Vision. Notice that the horizontal line on which the lines seem to meet is also the Horizon (the line where the earth and sky appear to meet) and is on the eye level of the figure in the picture. This is because our perspective lines are all parallel to the ground.



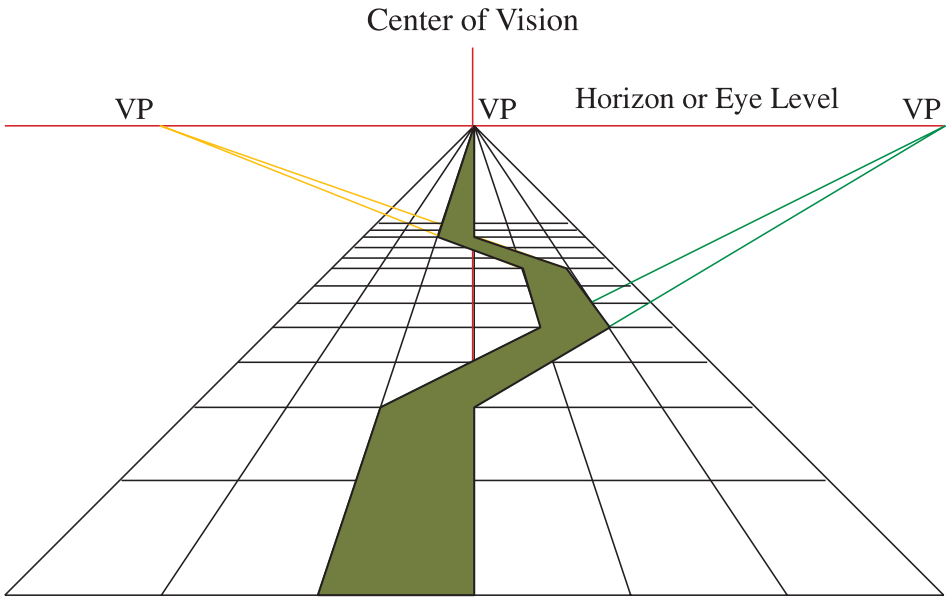
Line

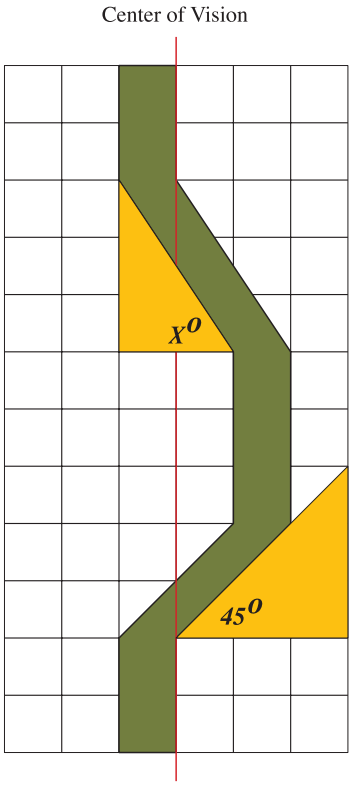
Fill

Try finishing the drawing called Chessboard.rna in the Activities folder. Using the Eye Level and Vanishing Points complete the perspective view of the chessboard (Eight Squares x Eight Squares) and use the Line and Fill tools.

The best way to find out about perspective is to look closely at the world around you. A little technical knowledge about it will help you to see things a little more accurately.

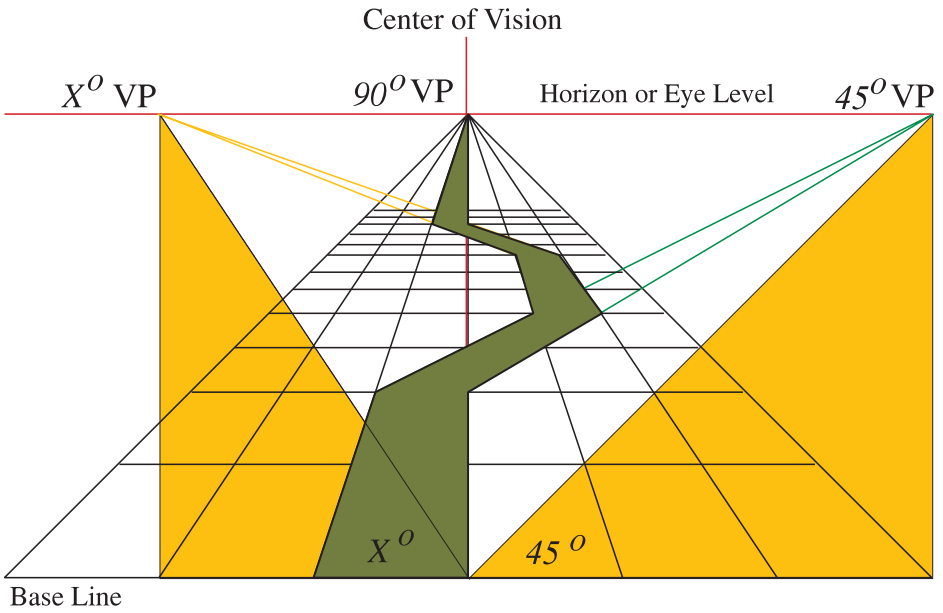
Our picture of the station looks straight down the lines with the Vanishing Point (VP) right in the middle. Look at the diagram on the right to see how you can put Vanishing Points elsewhere on the Horizon Line to make, for example, a road change direction.





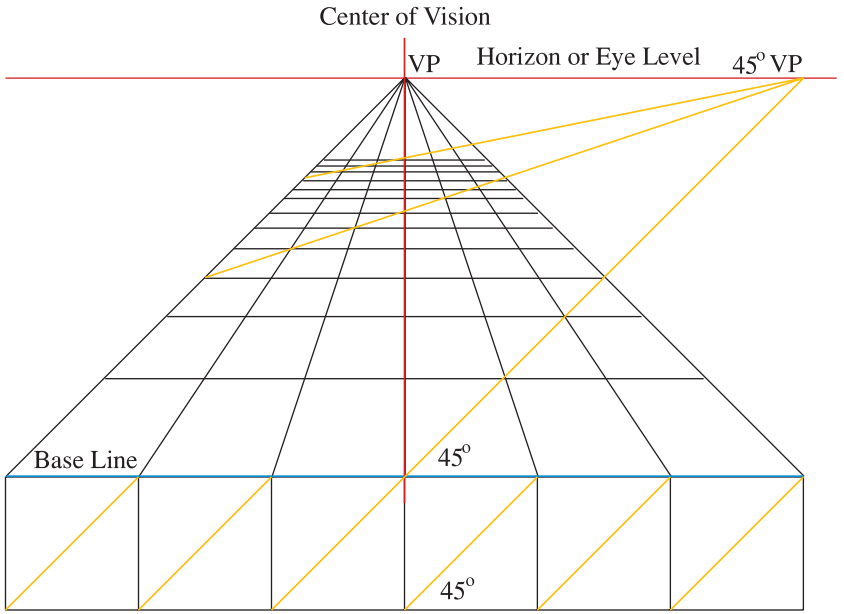
Plan View

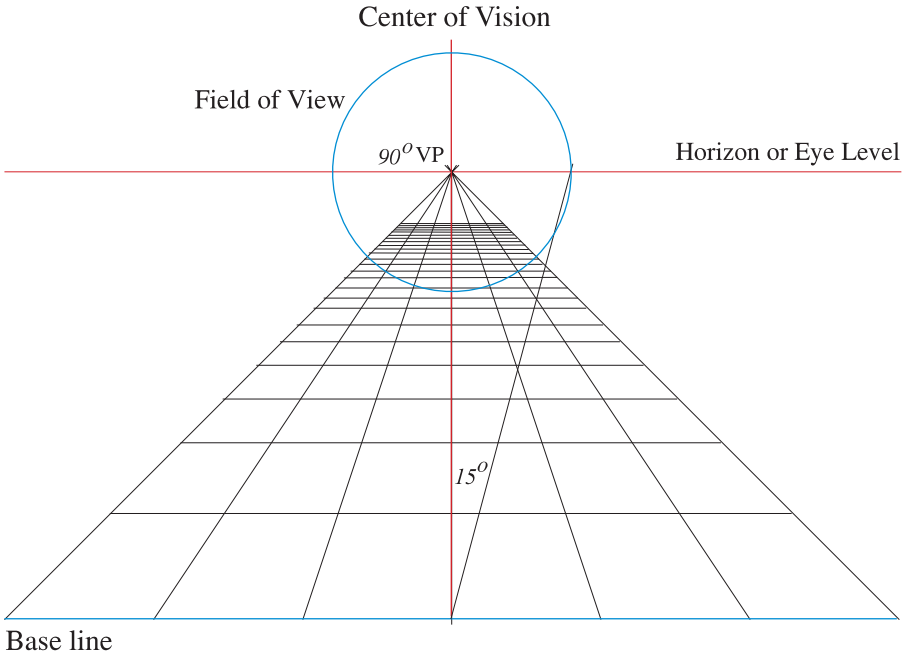
Look at the Plan View or bird's eye view of the same road. Note the angle where it changes direction. Now look at the Perspective View. The angles from the plan are plotted from the point where the Center of Vision and the Base Line meet. The Vanishing Points occur where the angle lines cut the Horizon Line. All lines parallel to those angles on the plan will go to the same Vanishing Point.



Perspective View

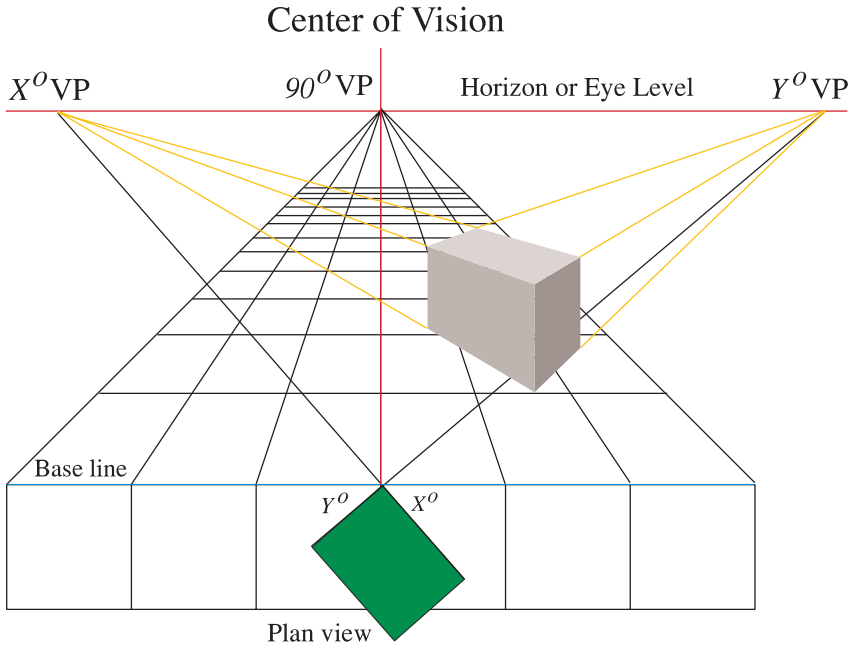
The row of squares below the Base Line is a Plan View of part of a grid pattern. The angle of the diagonal is 45°. The diagonals are parallel to each other so will have the same Vanishing Point. To find this, plot an angle of 45° from the Base Line and Center of Vision to the Horizon Line. This cuts three of the receding lines, showing where the corners will be. Draw horizontal lines through these points and you will see the first three rows of the grid appear in perspective. Now draw from the left of the farthest row to the 45° Vanishing Point and you will cut the receding lines in several more places from which you can draw more rows in.



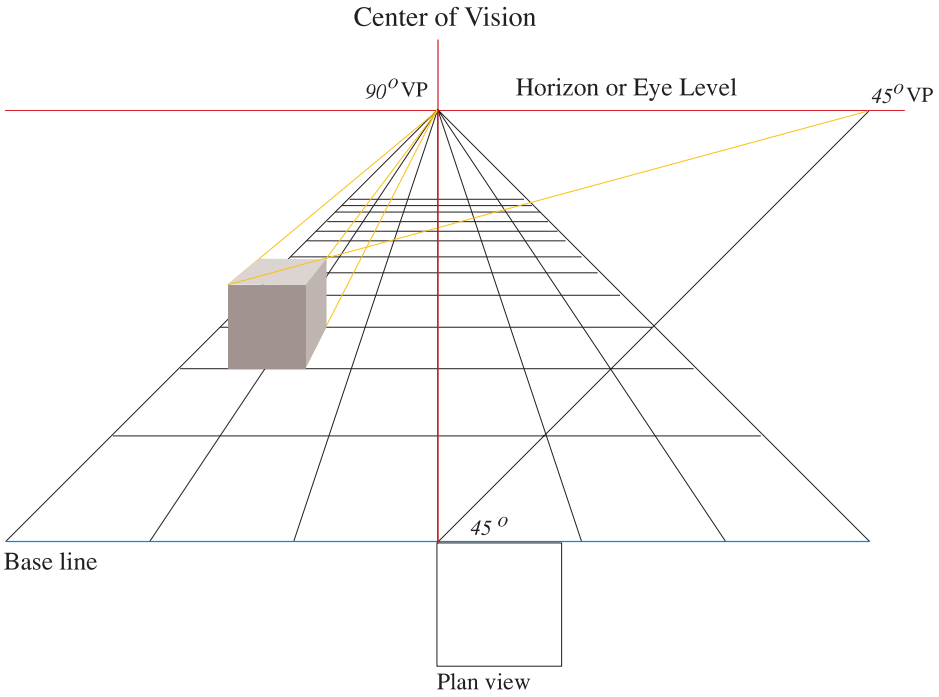


If you look at the first few rows of tiles they appear distorted. This is because the Base Line represents the feet of the viewer and is an area which you cannot see if you are looking at the horizon. It is generally taken that if you draw an angle of 15° from the Center of Vision on the Base Line to the Horizon Line and then draw a circle centered on the 90° Vanishing Point, what is within the circle is what lies within the vision of the viewer.

To draw a box on one of the squares, draw a square from the front corners and draw in the receding lines to the Center of Vision. Now draw a diagonal perspective line to the 45° Vanishing Point from the top of one of the vertical lines. Where this cuts the receding lines draw the horizontal line for the far edge of the box.



To draw a box when you are looking at a corner instead of a face, draw a plan view and measure the angles the sides make with the Base Line. Plot these angles onto the Eye Level from the Base Line. Start with the vertical edge of the box nearest to you and draw in the perspective lines as above.



Straight lines which are parallel to each other in reality appear to meet at a point in a perspective view. Lines which are parallel to the ground have a Vanishing Point on the Horizon or Eye Level. Because of this, lines lower than your eyes will go up towards the Horizon and lines above your eyes will go down as they go further away from you.

In the Activities Folder you will find the file Space City.rna. Try to complete this picture of a city in the future, using the two points of perspective.

Table of Keyboard Shortcuts

Here are standard shortcuts you can use on your keyboard with the **Crayola® Animation Studio** program. You can customize the keyboard shortcuts. Some options have more than one shortcut combination.

Shortcut	Menu option	Button in a toolbar or tool window
[	Paint->Selection->Transform->Rotate by 270°	
]	Paint->Selection->Transform->Rotate by 90°	
Alt+BackSpace	Edit->Undo <last change>	Undo
Alt+F2	File->Save As... Paint->Selection->Save Selection As...	
Alt+F3	File->Close	
Alt+F7	View->Other->Color Chooser	
Alt+X	File->Exit	
Ctrl+`	Paint->Selection->Transparent	
Ctrl+A	Edit->Select All	
Ctrl+Alt+Space	View->Other->Customize...	
Ctrl+C	Edit->Copy	Copy
Ctrl+F4	File->Close	
Ctrl+F7	View->Other->Color Settings	
Ctrl+Insert	Edit->Copy	Copy
Ctrl+N	File->New	
Ctrl+Num -	View->Zoom->Zoom Out	
Ctrl+Num *	View->Zoom->Normal Size	
Ctrl+Num +	View->Zoom->Zoom In	
Ctrl+O	File->Open...	Open
Ctrl+P	File->Print...	Print...
Ctrl+Q	View->Zoom->Zoom Out	
Ctrl+S	File->Save	Save

Shortcut	Menu option	Button in a toolbar or tool window
Ctrl+V	Edit->Paste or Edit->Paste After	Paste
Ctrl+W	View->Zoom->Zoom In	
Ctrl+X	Edit->Cut	Cut
Ctrl+Z	Edit->Undo <last change>	Undo
Del	Edit->Delete	
F2	File->Save	
F3	File->Open...	
F4	View->Organizer	
F5	View->Brushes	
F7	View->Palette	
F8	View->Zoom Settings	
F9	View->Preview	
F11	View->Stamp Browser	Stamp Browser
Insert	Edit->Insert After	
Shift+Ctrl+Z	Edit->Redo <last change>	Redo
Shift+Ctrl+Z	Edit->Undo <last change>	
Shift+Delete	Edit->Cut	Cut
Shift+Insert	Edit->Paste or Edit->Paste After	Paste
Alt+G	Animation->Generate...	
Alt+T	Animation->Transform...	
Ctrl+B	Animation->Blend	
Ctrl+D	Animation->Set Delay...	
Ctrl+H	Animation->Set HotSpot...	
Ctrl+R	Animation->Reverse Order	